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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,558	08/19/2003	Ivan Stanish	NC 84,696	6605

26384 7590 06/29/2005

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EXAMINER

WILLS, MONIQUE M

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/644,558

Applicant(s)

STANISH ET AL.

Examiner

Monique M. Wills

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 25-27 is/are rejected.
- 7) ☒ Claim(s) 23 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Allowable Subject Matter

Claims 23-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 23 would be allowable over the prior art of record because the prior art is silent to the galvanic cell of claim 1 comprising an electrolyte salt bridge.

Claim 24 would be allowable over the prior art of record because the prior art is silent to the galvanic cell of claim 1 comprising a fluorescent dye electrically connected to the first conducting substrate and the second conducting substrate.

Once the double patenting rejection is overcome, claims 1-22 & 25-27 would be allowable over the prior art of record, because the prior art is silent to a galvanic cell comprising a cathode comprising a first vesicle; an anode comprising a second vesicle; wherein the first vesicle, second vesicle or both comprise benzoquinone or hydroquinone.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-22 & 25-27 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 28-34, 40-42, 45-51, 55 & 59 of U.S. Patent No. 6,680,142. Although the conflicting claims are not identical, they are not patentably distinct from each other because they have common subject matter as follows:

Claims 58, 28 & 42 of '142 embrace instant claim 1 by necessitating: a first and second electrodes comprising first and second vesicles; first and second conducting substrates; one or more polymerized vesicles encapsulating one or more electroactive species; and first and second functionalized immobilizing the vesicles to the respective substrates; wherein the vesicles contain benzoquinone.

Art Unit: 1746

'142 does not expressly disclose an electrolyte in contact with both the first and second conducting substrates.

However, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ an electrolyte in the galvanic cell, because the skilled artisan recognizes that electrolytes are basic components of galvanic cells, and cells would not be able to function without all essential components.

Claim 31 of '142 embraces instant claim 2 by necessitating: that the polymerized vesicle is comprised of phospholipids, quaternary amine surfactants, or vesicle-forming amphiphiles.

Claim 32 of '142 embraces instant claim 3 by necessitating: that the polymerized vesicle is comprised of phospholipids having an ether, ester, or amide-linked backbone.

Claim 33 of '142 embraces instant claim 4 by necessitating: that the polymerized vesicle is comprised of phospholipids having polymerizable functionality

Claim 34 of '142 embraces instant claim 5 by necessitating: that said polymerizable functionality is located in the head-group, tail, or interfacial region and is selected from the group consisting of vinyl, acetylenic, methacryl, acryl, styrl, diacetylenic, sulfhydryl, disulfide, and dienoates.

Claim 28 of '142 embraces instant claim 6 by necessitating: that the vesicles are polymerized.

Art Unit: 1746

Claim 37 of '142 embraces instant claim 7 by necessitating: that the electron donor species is selected from the group consisting of riboflavin, ascorbic acid, and ferrocyanide.

Claim 40 of '142 embraces instant claims 8-10 by necessitating: that the electron acceptor is selected from the group consisting of ferricyanide, superferrioxide, ferri chelates combined with glutamate, ethylenediamine tetraacetic acid or citrate, and manganese chelates, combined with glutamate, ethylenediamine tetraacetic acid or citrate.

Claim 41 of '142 embraces instant claim 11 by necessitating: that the polymerized vesicle further includes organic concomitant electron and proton mediators.

Claim 42 of '142 embraces instant claim 12 by necessitating: that the mediators are selected from the group consisting of benzoquinone, vitamin K, and ubiquinone.

Claim 45 of '142 embraces instant claim 13 by necessitating: that the polymerized vesicle further includes organic cationic carriers.

Claim 46 of '142 embraces instant claim 14 by necessitating: that the the organic cationic carriers or channels are selected from the group consisting of nigericin, monenesin, gramicidin, lasalocid, calcimycin, and ionomycin.

Art Unit: 1746

Claim 29 of '142 embraces instant claim 29 by necessitating: that the substrate is selected from the group consisting of metal, polymer and alloy.

Claim 30 of '142 embraces instant claim 16 by necessitating: that the conducting substrate is selected from the group consisting of gold, silver, palladium, platinum, rhodium, tin, polypyrrole, polyaniline, and indium titanium oxide.

Claim 55 of '142 embraces instant claim 17 by necessitating: that the conducting substrate comprises gold.

Claim 47 of '142 embraces instant claim 18 by necessitating: that the functionalized tether is comprised of a saturated aliphatic.

Claim 48 of '142 embraces instant claim 19 by necessitating: that the saturated aliphatic tether is selected from the group consisting of ethyl, propyl, butyl, pentyl, and hexyl.

Claim 49 of '142 embraces instant claim 20 by necessitating: that the functionalized tether is comprised of conjugated or non-conjugated polyene, polyacetylene, or polyphenylacetylene.

Claim 50 of '142 embraces instant claim 21 by necessitating: that the functionalized tether further includes a terminal functional group for non-covalent or covalent substrate binding.

Claim 51 of '142 embraces instant claim 22 by necessitating: that the

Art Unit: 1746

terminal functional group is selected from the group consisting of sulfhydryl, disulfide, and amide.

Claim 59 of '142 embraces instant claims 25-27 by necessitating: that the galvanic cells as in claim are connected in series or in parallel.

Although '142 does not expressly disclose that the cells are connected in series *and* parallel, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the cells in both parallel and series configurations , since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Michael Barr, may be reached at 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1746

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MW

6/24/05

A handwritten signature in black ink, appearing to read 'Michael Barr', with a long horizontal flourish extending to the right.

MICHAEL BARR
SUPERVISORY PATENT EXAMINER